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REMARKS

New claims 51-54 have been added to more clearly describe Applicant's invention. Support for the new claims can be found throughout the present specification and claims as originally filed, including, for example, paragraphs [0039]-[0040]. No new matter has been added. Thus, claims 3, 5-7, 9, 11-13, 15-19, 23-25, 29, 33, 49, and 51-54 are pending.

Rejection of Claims under 35 U.S.C. § 103(a)

The Examiner has rejected claims 3, 5-7, 9, 11-13, 15-17, 23-25, and 29 under 35 U.S.C. § 103(a) as being unpatentable over Zhu et al. (U.S. Patent No. 6,251,175) in view of either Belmont et al. (U.S. Patent No. 5,713,988) or Johnson et al. (U.S. Patent No. 6,478,863).

In paragraph 3 of the Final Office Action, the Examiner incorporated by reference the rejection set forth in paragraph 8 of the Office Action mailed 12/14/06. In addition, regarding Applicant's arguments filed 6/13/07, the Examiner states that these have been fully considered but are not persuasive. Each of the Examiner's comments concerning the previous arguments will be summarized individually below.

A) The Examiner states that Applicant's argued that, in order to arrive at the present invention, one would have choose pigment, which is a non-preferred embodiment of Zhu et al. and only generically disclosed, choose the present claimed polymer from many types of polymers disclosed by Zhu et al., and choose the present claimed salt from many types of conductivity agents disclosed by Zhu et al. However, while the Examiner agrees that one must choose pigment, the presently claimed polymer, and the presently claimed salt from Zhu et al., the Examiner states that the fact remains that Zhu et al. explicitly discloses ink comprising pigment, polymer having anionic functional group such as styrene-acrylic acid or polyacrylic

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acid, and salt having polyvalent metal cation such as calcium chloride. Furthermore, the Examiner states that the choices are not from large groups and, while pigment is not a preferred colorant, it is noted that non-referred disclosures can be used.

B) The Examiner states that Applicant argued that choosing the presently claimed components from Zhu et al. would go against the teaching of the reference, which states that the ink must meet certain rigid requirements relating to viscosity, resistivity, solubility, compatibility of components, and wettability of substrate and that the replacement of Zhu et al.'s generic pigment for a modified pigment is not straightforward. However, the Examiner states the position that the combination of Zhu et al. with Belmont et al. or Johnson et al. is proper since both Belmont et al. and Johnson et al. are drawn to non-aqueous inkjet ink and both disclose the use of modified pigment having attached anionic functional group such as carboxyl group. The Examiner concludes that, given that Zhu et al. is open to the inclusion of any pigment, given that Belmont et al. and Johnson et al. are each drawn to non-aqueous ink jet ink as is Zhu et al., and given that Belmont et al. and Johnson et al. each provide motivation for using the modified pigment as the pigment in Zhu et al, the combination of Zhu et al. with Belmont et al. or Johnson et al. is proper.

C) The Examiner states that Applicant argued that Zhu et al. states that it is essential that the ink jet ink have a viscosity from about 1.0 to about 10 cPs in order to achieve the disclosed rheological characteristics and thus, one skilled in the art would avoid combination of components that would undesirably raise the viscosity, such as the use of salt with polyvalent metal cation, modified pigment, and additive binder comprising anionic group, which may result in the flocculation of the pigment. However, the Examiner states that, while Applicant argues that flocculation "may" occur or that the combination of such components "may" cause an undesirable rise in viscosity, there is no evidence to support that such events would occur when combining Zhu et al. with Belmont et al. or Johnson et al. Further, the Examiner states

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that, given the disclosure of Zhu et al. regarding the desired viscosity, it would have been obvious to one of ordinary skill in the art to control the viscosity of the ink to such values.

The Examiner therefore concludes that, given that Zhu et al. explicitly discloses the use of pigment, polymer such as styrene-acrylic acid, and salt such as calcium chloride with no disclosure that any combination of elements cannot be used together, given that Zhu et al. discloses the use of "any" pigment, and given that Belmont et al. and Johnson et al. each provide motivation to utilize pigment having anionic group in ink jet inks, and absent evidence to the contrary, there is a reasonable expectation of success when combining Zhu et al. with Belmont et al. or Johnson et al.

Applicant continues to respectfully disagree. Regarding claims 3, 5-7, 9, 11-13, 15-17, and 23-25, claim 3 recites an ink composition comprising a) a liquid vehicle, which is a non-aqueous vehicle, b) at least one modified pigment comprising a pigment having attached at least one functional group, c) at least one salt having a polyvalent ion, and d) at least one polymer comprising at least one functional group. The functional group of the modified pigment and of the polymer are capable of coordinating with said polyvalent ion and are anionic groups, ionizable groups that form anionic groups, or a mixture of anionic groups and ionizable groups that form anionic groups, and the salt comprises a polyvalent metal cation.

In order to arrive at the present invention as recited in claim 3, one skilled in the art would have to be motivated by the teaching of the references 1) to choose a pigment as the colorant, which is a non-preferred embodiment of Zhu et al. and is only generically disclosed, 2) to choose, from among the many types of additive binders, one comprising an anionic group or a group that forms an anion, and 3) to choose, from among the many conductivity agents that are described by Zhu et al. one that comprises a polyvalent metal cation. There is only one such conductivity agent disclosed in Zhu et al. - calcium chloride. The Examiner has not provided any motivation, based on the teaching of this reference, for why or how one skilled in the art would be motivated to arrive at this specific combination of components, but merely states that the reference shows each of these components separately. There is no guidance or teaching

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anywhere in Zhu et al. of which pigments to use and what additional components (additive binder and conductivity agent) to combine it with, specifically to use calcium chloride with a pigment and a binder having an anionic group or a group that forms an anion.

However, this combination alone is not sufficient to arrive at the invention as recited in claim 3. In addition to selecting the three specific components from the lists in Zhu et al., one skilled in the art would then further have to be motivated to replace the generic pigment of Zhu et al. with a modified pigment from either Belmont et al. or Johnson et al. and, not just any of the modified pigments disclosed in these references, but specifically one comprising a pigment having attached at least one anionic group or ionizable group that forms an anionic group. The Examiner has not provided any motivation or teaching from any of the references that would lead one skilled in the art to this specific combination of components.

Applicant believes that selecting these specific components cannot be done based on the disclosure of the cited references but can only be done based on the teaching of the present application, which specifically describes how and why the specific components should be combined (see, for example, paragraphs [0043] to [0046]). Furthermore, the present specification also provides evidence for why one skilled in the art would not be motivated to replace a generic pigment of the ink jet ink of Zhu et al. which further comprises a polyvalent metal cation, such as calcium chloride, and an additive binder comprising an anionic group or an ionizable group that forms an anionic group, with a modified pigment comprising a pigment having attached at least one anionic group or ionizable group that forms anionic groups, and have a reasonable expectation of successfully meeting the essential requirements set out in Zhu et al.. As described in paragraph [0046] of the present specification, destabilization of the modified pigment dispersion would have been expected, and, in fact, was observed. For this reason, the combination of modified pigment having an anionic functional group and a polyvalent metal cationic salt would have been avoided. Applicant believes, therefore, that there would not be a reasonable expectation of success, especially based on evidence found in the prior art and not in Applicant's disclosure, and therefore a *prima facie* case of obviousness cannot be established (see MPEP 706.02(j)).

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Thus, Applicant respectfully disagrees with the Examiner's statement that there is a reasonable expectation of success when combining Zhu et al. with Belmont et al. or Johnson et al. "Evidence to the contrary" has been provided. For these reasons, Applicant therefore believes that claim 3 is patentable over Zhu et al. in view of Belmont et al. or Johnson et al. Claims 5-7, 9, 11-13, 15-17, and 23-25, which depend either directly or indirectly from claim 3, recite further embodiments of the present invention and, for at least the reasons discussed above, are also patentable over these references.

Regarding claim 29, this claim recites a method of generating an image comprising incorporating into a printing apparatus an ink composition of the present invention, as recited in claim 3, and generating an image on a substrate. Since, as discussed above, Applicant believes the ink composition of claim 3 is patentable over Zhu et al. in view of Belmont et al. or Johnson et al., Applicant further believes that an inkjet printing method using this inkjet ink is also patentable over this combination of references.

Therefore, Applicant believes that claims 3, 5-7, 9, 11-13, 15-17, 23-25, and 29 are patentable over Zhu et al. in view of Belmont et al. or Johnson et al., and respectfully requests that this rejection be withdrawn.

Regarding new claims 51-54, claim 51 recites an inkjet ink composition comprising a) a non-aqueous liquid vehicle, b) at least one modified pigment comprising a pigment having attached at least one functional group, c) at least one salt having a polyvalent ion, and d) at least one polymer comprising at least one functional group. The functional group of the modified pigment and of the polymer are capable of coordinating with said polyvalent ion and are anionic groups, ionizable groups that form anionic groups, or a mixture of anionic groups and ionizable groups that form anionic groups. Furthermore, the polyvalent ion of the salt is a cadmium, copper, iron, magnesium, nickel, zinc, aluminum, or zirconium cation.

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By comparison, Zhu et al. in view of either Belmont et al. or Johnson et al. does not disclose, teach or suggest this specific combination of components, as discussed in more detail above. In particular, even considering the single description that of the use of calcium chloride in Zhu et al., calcium salts are not included in new claim 51. Applicant therefore believes that new claim 51 is patentable over Zhu et al. in view of Belmont et al. or Johnson et al. Furthermore, new claims 52-54, which depend directly from new claim 51, recite further embodiments of the present invention and, for at least the reasons discussed above, are also patentable over these references. Therefore, Applicant believes that new claims 51-54 are patentable over Zhu et al. in view of either Belmont et al. or Johnson et al.

Allowable Subject Matter

In paragraph 5 of the Office Action, the Examiner states that claims 33 and 49 are allowable over the "closest" prior art cited. Furthermore, in paragraph 6 of the Office Action, the Examiner states that claim 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form, including all the limitations of the base claim and any intervening claims.

Applicant is grateful for the allowable subject matter of claims 18, 19, 33 and 49. In addition, as discussed in more detail above, Applicant believes that the remaining pending claims should also be found allowable.

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Conclusion

In view of the foregoing remarks, Applicant believes that this application is in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would further expedite the prosecution of the subject application, the Examiner is invited to call the undersigned.

Respectfully submitted,

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